

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Stephens Energy Company
Well Name/Number: Thuesen 7-9
Location: SW NE Section 9 T32N R56E
County: Sheridan, MT; Field (or Wildcat) Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 20-30 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig 900 HP, 11,300' TD Red River Formation well test.

Possible H₂S gas production: Yes possible.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Associated gas to be flared or if a pipeline is run to a sweetening facility then it can be hooked up.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to long string, production hole, salt saturated drilling fluids. Surface casing freshwater, and freshwater mud system to be used.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary drainage to Big Muddy Creek, about 5/8 of a mile to the northwest from this location. Distance to Big Muddy Creek is about 1.25 miles to the west from this location.

Water well contamination: Closest water wells are about 1 mile and further from this location, depth of these wells are from 30' to 275'. Significantly shallower than the surface casing setting depth of 2500'. Surface casing will be set to 2500' and cemented to surface to protect shallow ground waters and the Fox Hills aquifer.

Porous/permeable soils: No, rocky-sandy clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 2500' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and operational BOP equipment to prevent problems.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: No, location will require a small cut of up to 1.8' and small fill, up to 1.6', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of wellsite will be reclaimed.

Unusually large wellsite: No, large well site 300'X400'

Damage to improvements: Slight, surface use is cultivated field.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28)

Comments: Will use existing state highway, #16 and unnamed county gravel road. About 3,920' of new access road will be built into this location off existing county gravel road. Cuttings will be buried in the lined reserve pit. Drilling fluids will be hauled to a commercial Class II Disposal. Completion fluids will be removed and hauled to commercial Class II Disposal. The pit after solidification will be backfilled with subsoil. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 3/4 of a mile to the southeast, about 1 mile to the northwest and 1.125 miles to the southwest from this location.

Possibility of H2S: Yes possible.

Size of rig/length of drilling time: Triple drilling rig 20 to 30 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☒ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems. Sufficient distance between location and buildings, noise should not be a problem.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened or endangered are the Whooping Crane and Piping Plover. Candidate species is the Sprague's Pipit. NH Tracker website twenty-five(25) species of concern, Clark's Grebe, Baird's Sparrow, Nelson's Sparrow, Grasshopper Sparrow, Sprague's Pipit, Great Blue Heron, Burrowing Owl, American Bittern, Ferruginous Hawk, Chestnut Collared Longspur, Piping Plover, Black Tern, Sedge Wren, Yellow Rail, Bobolink, Whooping Crane, Caspian Tern, Franklin's Gull, Long-billed Curlew, Black-crowned Night Heron, American White Pelican, Forester's Tern, Common Tern, Western Hog-nosed Snake and Smooth Greensnake. Potential Species of

Concern one(1) is the Eastern Screech Owl.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private cultivated surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Surface location is private cultivated land. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

11,300' TD Red River Formation vertically drilled hole. No concerns.

Summary: Evaluation of Impacts and Cumulative effects

Short term impacts expected, no long term impacts anticipated.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki

(title:) Chief Field Inspector

Date: September 24, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center GWIC
website

(Name and Agency)

Sheridan County water wells

(subject discussed)

September 24, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Sheridan County

(subject discussed)

September 24, 2011

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T32N R56E

(subject discussed)

September 24, 2011

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____